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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/714,804	11/16/2000	Richard Shann	S1022/8572	3979

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EXAMINER

ROMANO, JOHN J

ART UNIT	PAPER NUMBER
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2122

15

DATE MAILED: 10/08/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/714,804	SHANN ET AL.	
	Examiner	Art Unit	
	John J Romano	2122	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 November 2000.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☒ Claim(s) 8 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 November 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>9</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claims 1-8 are pending in this action.

Claim Objections

1. Claim 8 is objected to because of the following informalities: redundant claim language (Page 15, lines 20-34). The limitations of claim 8, lines 5-19, are repeated verbatim in lines 20-34. In fact the claim is ending with a proper period on line 19. For further compact prosecution lines 20 – 34 has not been treated by the examiner.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. The term "possible" in claim 6 is a relative term which renders the claim indefinite. The term "possible" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. Thus, the word "possible" will be ignored by the examiner.

Claim Rejections - 35 USC § 102

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. Claims 1, 2, 5 and 6 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Hadjiyiannis et al, "ISDL: An Instruction Set Description Language for Retargetability", (hereinafter Hadjiyiannis).

2. In regard to claim 1, **Hadjiyiannis** discloses:

- "...a descriptor file containing information descriptive of the instruction set of said target microprocessor..." (E.g., see Fig. 1 & Section I, Paragraph C, lines 1-9), wherein the Architecture Synthesis System comprises the machine description including an instruction set specification and some architectural information.
- "...a translation device for translating assembly language into machine language as an output wherein the translation device comprises a fetching device for acquiring data from said descriptor file..." (E.g., see Fig. 1 & Section III, Paragraph 1, lines 2-11), wherein the Architecture Synthesis System transmits the ISDL description to the compiler. The compiler outputs machine specific assembly code, which is translated to machine language via the automatic assembler generated by the ISDL description. Thus, the translation device comprises the Architecture Synthesis System, the compiler, and the ISDL description. Furthermore, the compiler fetches the ISDL description from the Architecture Synthesis System.
- "...a control device receiving said data from said fetching device and constraining the output of said translation device to conform to the architecture of said instruction set." (E.g., see Fig. 1 & Section III, Paragraph 1, lines 5-7), wherein the compiler is the control device

which receives fetches said data and constrains the data to produce code specific to the target processor or instruction set.

3. In regard to claim **2**, **Hadjiyiannis** discloses:

- "...wherein the descriptor file further comprises syntax information for each instruction..." (E.g., see Section III, Paragraph 4), wherein the six sections of the ISDL are listed and later further described along with their syntax definitions.
- "...the translation device translated each instruction on the basis of said syntax information." (E.g., see Section I, Paragraph C, lines 1-6), wherein the machine description contains the syntax information and the code generator produces code based on that information.

4. In regard to claim **5**, **Hadjiyiannis** discloses:

- - "...providing a descriptor file containing information descriptive of the instruction set of said target microprocessor..." (E.g., see Fig. 1 & Section I, Paragraph C, lines 1-9), wherein the Architecture Synthesis System comprises the machine description including an instruction set specification and some architectural information.
- "...translating assembly language instructions into machine language wherein the translation step comprises acquiring data from said descriptor file..." (E.g., see Fig. 1 & Section III, Paragraph 1, lines 2-11), wherein the Architecture Synthesis System transmits the ISDL description to the compiler. The compiler outputs machine specific

Art Unit: 2122

assembly code, which is translated to machine language via the automatic assembler generated by the ISDL description. Thus, the translation device comprises the Architecture Synthesis System, the compiler, and the ISDL description. Furthermore, the compiler fetches the ISDL description from the Architecture Synthesis System.

- "...constraining the machine language to conform to the architecture of said instruction set."
- "...*constraining the machine language to conform to the architecture of said instruction set.*" (E.g., see Fig. 1 & Section III, Paragraph 2), wherein **Hadjiyiannis** teaches that "The compiler can therefore avoid generating invalid instructions by ensuring that each instruction meets these constraints".

5. In regard to claim **6**, **Hadjiyiannis** discloses a method as described in claim **5** above, and furthermore discloses:

- "...*wherein the descriptor file further contains syntax information for each [possible] instruction of the instruction set...*" (E.g., see Section III, Paragraph 4), wherein the six sections of the ISDL are listed and later further described along with their syntax definitions.
- "...*and said translating step comprises transliterating each assembly language instruction using said syntax information.*" (E.g., see Section I, Paragraph C, lines 1-6), wherein the machine description contains

the syntax information and the code generator produces code based on that information.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims **3, 4, 7 and 8** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Hadjiyiannis** and further in view of **Vos**, GB 2,127,188 A.

8. In regard to claim **3**, **Hadjiyiannis** discloses the system of claim 1 discussed above. But **Hadjiyiannis** does not disclose expressly "...and further comprising a data capture device having an input for accessing the instruction set of said target microprocessor and having an output, wherein said output comprises said descriptor file." However, **Vos** discloses:

- "...and further comprising a data capture device having an input for accessing the instruction set of said target microprocessor..." (E.g., see Fig. 1, blocks 2, 4 and 6 & Page 2, lines 8-11), wherein the prompter (data capture device) has an input form the interface requirements, which provides details including the instruction set of a target microprocessor.

Art Unit: 2122

- "...having an output, wherein said output comprises said descriptor file." (E.g., see Fig. 1, blocks 2, 4 and 6 & Page 2, lines 11-14), wherein the integration source file is the descriptor file.

Hadjiyiannis and **Vos** are analogous art because they are both concerned with the same field of endeavor, namely, an architecture that is modifiable by input and adapts source code to such input and correspondingly outputs machine language. Therefore, at the time the invention was made, it would have been obvious to a person of ordinary skill in the art to utilize **Vos'** data capture device in **Hadjiyiannis's** system of claim 1 as an alternate method to implement architectural specifications. The motivation for doing so would have been to have a simpler design for a particular system, where **Vos'** method may be more efficient than **Hadjiyiannis's** for a particular objective.

9. In regard to claim 4, **Hadjiyiannis** discloses the system of claim 1 as described above. But **Hadjiyiannis** does not disclose expressly "...a linker wherein the system has a data transfer device outputting selected data fetched from said descriptor file to said linker, whereby said linker uses said output data to modify the translated output of said system." However, **Vos** discloses:

- "...a linker wherein the system has a data transfer device outputting selected data fetched from said descriptor file to said linker..." (E.g., see Fig. 1, block 6, 8, 10, and 18 & Page 2, lines 8-14), wherein the processor fetches the data from the Integration Source File, (descriptor

Art Unit: 2122

file), and transfers the selected data to the linker command file and configuration object file, which are provided as input to the linker.

- "...whereby said linker uses said output data to modify the translated output of said system." (E.g., see Fig. 1 & Page 2, lines 21-27), wherein the linker uses the linker command file, configuration object file, and support library to modify the object code in accordance with the prototype processor system's memory.

Hadjiyiannis and **Vos** are analogous art because they are both concerned with the same field of endeavor, namely, an architecture that is modifiable by input and adapts source code to such input and correspondingly outputs machine language. Therefore, at the time the invention was made, it would have been obvious to a person of ordinary skill in the art to utilize **Vos'** linker in **Hadjiyiannis's** system of claim 1 as an alternate method to implement architectural specifications. The motivation for doing so would have been to have a design that may be more efficient for a particular objective.

10. In regard to claim 7, claim 7 is a method version of the previously disclosed claims 1, 2 and 3. **Hadjiyiannis** discloses the system of claims 1 and 2 as described above, correspondingly meeting the limitations as applied to claim 7. But **Hadjiyiannis** does not disclose expressly the system of claim 3. However, **Vos** discloses the system of claim 3 as described above. Thus, the limitations in claim 7 are met as disclosed in the respective above claims.

11. In regard to claim 8, claim 8 is a method version of claim 1 with further limitations. **Hadjiyiannis** discloses the system of claim 1 as described above. But

Art Unit: 2122

Hadjiyiannis does not disclose expressly "...*providing plural program modules, at least one of said modules having one or more instructions including external symbols, wherein external symbols have values which cannot be determined without reference to another program module...*". Furthermore, **Hadjiyiannis** does not disclose expressly "...and further comprising binding external symbols to addresses using data selected from said descriptor file." However, **Vos** discloses:

- "...*providing plural program modules, at least one of said modules having one or more instructions including external symbols, wherein external symbols have values which cannot be determined without reference to another program module...*" (E.g., see Fig. 1, blocks 10, 12, 14, 16, 18 and 20 & Page 2, lines 15-19), wherein the Pascal Object File has one or more instructions including external symbols, which are determined by reference to the support library.
- "...*and further comprising binding external symbols to addresses using data selected from said descriptor file.*" (E.g., see Fig. 1 & Page 2, lines 2-15), wherein the generated Pascal code comprising symbols are binded to addresses of the processor system.

Hadjiyiannis and **Vos** are analogous art because they are both concerned with the same field of endeavor, namely, an architecture that is modifiable by input and adapts source code to such input and correspondingly outputs machine language. Therefore, at the time the invention was made, it would have been obvious to a person of ordinary skill in the art to utilize **Vos'** program modules

Art Unit: 2122

and binding in **Hadjiyiannis's** system of claim 1 as an alternate method to implement architectural specifications. The motivation for doing so would have been to have a simpler design for a particular system, where **Vos'** method may be more efficient than **Hadjiyiannis's** for a particular objective.

Conclusion

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure as follows:

- **Microcoding and bit-slice techniques.** A.N. Edmonds. Electronics & Wireless World. 1988, March, No. 1625.
- **Automatic translation of assembly language software.** R. A. Lawler. National Aerospace and Electronics Conference (NAECON), published 1987, IEEE, Vol. 3, pages 728-731.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to John J Romano whose telephone number is (703) 305-0358. The examiner can normally be reached on 8-5:30, M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tuan Q Dam can be reached on (703) 305-4552. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 2122

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



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